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10/672,013	09/26/2003	Seong Deok Ahn	2013P107	7684

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EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/672,013

**Applicant(s)**

AHN ET AL.

**Examiner**

Richard Bueker

**Art Unit**

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/26/03; 3/7/05</u> | 6) <input type="checkbox"/> Other: ____  |

Art Unit: 1763

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 10, the phrases "the transfer lines" and "the valves" lack proper antecedent basis.

Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification fails to describe or explain the steps of generating first organic source vapors by heating a source chamber containing a first organic source material, and then forming second organic source vapors by heating an additional source chamber containing the first organic material and a second organic material. The specification fails to disclose what the first organic source material and second organic material are. Their compositions are not disclosed, and it is unclear whether these first and second materials are required to have different compositions or not. One skilled in the art has no way of knowing what the difference is between the first and second materials, or what the purpose is for depositing two layers containing these two types of materials.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification fails to provide proper antecedent basis for the subject matter of claim 13.

Art Unit: 1763

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 6-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Jurgensen (WO 01/61071).

Jurgensen (WO 01/61071) and Jurgensen (2003/0054099) are patent family equivalents and Jurgensen (2003/0054099) is used in this office action as an English translation for Jurgensen (WO 01/61071). Jurgensen (see Figs. 1-6) discloses an apparatus for vapor phase deposition including process chamber, temperature controlled substrate holder, showerhead, source chambers for generating organic source vapors, transfer gas (i.e. carrier gas) source and a source heater for evaporating source material in the source chamber. Regarding claim 3, Jurgensen (see Fig. 8) teaches the use of a bubbler having the transfer gas line extending into the source chamber. Jurgensen teaches that the vaporizer of Fig. 8 can be substituted for any of the source chambers in Figs. 1 and 5. Regarding the purging step in claim 11, Jurgensen teaches (paragraphs 44 and 45) the step of providing a further feed line to feed carrier gas to the showerhead to purge the showerhead plenum when switching

Art Unit: 1763

precursor streams. Also, Jurgensen's three-way valve 43 of Fig. 8 automatically switches carrier gas into the chamber supply line 6 when source gas flow is terminated.

Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurgensen I (WO 01/61071) I Taken in further view of Jurgensen II (WO 02/27064). Jurgensen (WO 02/27064) and Jurgensen (2003/0056720) are patent family equivalents and Jurgensen (2003/0056720) is used in this office action as an English translation for Jurgensen II (WO 02/27064). Jurgensen II teaches the use of a source chamber with a conic gas distributor plate to supply source gas to a vapor coating chamber. It is noted that the vaporizer of Jurgensen II is equivalent to that of DE 10048759 that is cited in paragraph 47 of Jurgensen I.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurgensen I (WO 01/61071) taken in view of Ozias (4,846,102) (col. 2, lines 15-21) who teaches that vapor coating reactors are typically flushed after a coating process. It would have been obvious to one skilled in the art to purge after deposition in Jurgensen's coating apparatus for the desirable purpose of flushing unwanted gases from the reaction chamber.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurgensen I (WO 01/61071) taken in view of Forrest I (5,554,220), Forrest II (6,337,102) and Posa (4,747,367). Forrest I (col. 7, lines 60-67) and Forrest II (col. 3, lines 48-61) teach that it is desirable to switch the gas flows in an OVPD process for depositing plural separate layers, and for that reason it would have been obvious to do so in Jurgensen's OVPD reactor. Furthermore, Posa teaches that a vapor coating

Art Unit: 1763

reactor that is used for depositing plural separate layers should be flushed at the end of each separate gas flow. In view of Posa, it would have been obvious to purge Jurgensen's chamber after the end of each separate gas flow.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurgensen I (WO 01/61071) taken in view of Forrest I (5,554,220), Forrest II (6,337,102) and Posa (4,747,367) for the reasons given above, and taken in further view of Dauelsberg (WO 01/57289) and Konuma (2002/0030443). Dauelsberg (2003/0056720) is used in this office action as an English translation for Dauelsberg (WO 01/57289). Dauelsberg (see Fig. 9 and para. 49) teaches the use of a vaporizer in which two organic source materials are vaporized together in a heated source chamber. It would have been prima facie obvious to one skilled in the art to use Dauelsberg's two-material vaporizer for depositing one of the plural layers suggested by Forrest (I and II). Also, Konuma teaches (see Fig. 7B) that it was known to be desirable to form a plural layer organic EL device wherein an Alq<sub>3</sub>/DCM-1 mixed layer is formed on top of an Alq<sub>3</sub> layer. It would have been prima facie obvious to form the Alq<sub>3</sub> layer of Konuma with a vaporizer of the type shown in Fig. 8 of Jurgensen and to form the Alq<sub>3</sub>/DCM-1 mixed layer with a vaporizer of the type shown in Fig. 9 of Dauelsberg, because both types of vaporizer were known in the prior art to be useful for depositing organic layers for organic EL devices of the type shown in Fig. 7B of Konuma.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

Art Unit: 1763

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parvis Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Bueker  
Primary Examiner  
Art Unit 1763